



# ENERGY

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ENERGY =  $MC^2$ ... THE MICHIGAN COMPUTER CONSORTIUM MAGAZINE

OCTOBER 1986



**SHE SAID SHE DIDN'T HAVE  
ANY CHOCOLATE CHIPS!**



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## ABOUT ENERGY

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Subscriptions to ENERGY are provided as a benefit of membership in one of the clubs constituting the Consortium. For information about joining one of the clubs, refer to the club data section of this issue or write to the club in care of the Consortium at the address above. Individual copies of ENERGY can also be purchased at many greater Lansing area locations.

Please check the mailing label on each issue of ENERGY that you receive. Notify your club officers if your address changes. The date on the ENERGY mailing label is a reminder of your current membership term.

## ABOUT THE MICHIGAN COMPUTER CONSORTIUM

The Michigan Computer Consortium was formed in 1983 to sponsor joint activities involving member clubs. Current members of MC<sup>2</sup> are:

AppleLUG	Apple Lansing Users Group
CCUG	Color Computer Users Group
CHAOS	Capitol Hill Atari Owners Society
M <sup>3</sup> G	Mid-Michigan Microcomputer Group
UPCO	Users Personal Computer Organization

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## ADVERTISING

Your advertisement in ENERGY will reach over 500 active computer users in the greater Lansing area. Four sizes of ads are available, with discounts provided for multi-issue contracts. Camera-ready ad copy is generally needed by the 15th of the month preceding publication. Limited graphics artwork is available at an extra charge. For more information, contact the Advertising Manager listed above.

## ARTICLE SUBMISSIONS

Members are strongly encouraged to submit articles. Contact your club's Editorial Board representative. We generally use compressed mode printer copy with 3.5 inch columns and 8 lines per inch. Deadline for articles is the 15th of the month preceding publication.

## OUR COVER ARTIST

This month's cover is courtesy of Ginny Jerner.

SEPTEMBER 1986  
 SU MO TU WE TH FR SA  
 1 2 3 4 5 6  
 7 8 9 10 11 12 13  
 14 15 16 17 18 19 20  
 21 22 23 24 25 26 27  
 28 29 30

# CONSORTIUM CALENDAR

OCTOBER 1986

NOVEMBER 1986  
 SU MO TU WE TH FR SA  
 1  
 2 3 4 5 6 7 8  
 9 10 11 12 13 14 15  
 16 17 18 19 20 21 22  
 23 24 25 26 27 28 29  
 30

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1	2	3	4
			LACC	CMARC	CCUG	Rosh Hashana
5	6	7	8	9	10	11
LAMALUG	M3G EXEC	HEATH SIG				
12	13	14	15	16	17	18
CMARC Ham Fair	Yom Kippur Columbus Day Thanksgiving	CAN/TTI USERS GROUP	ENERGY DEADLINE		CHAOS	
19	20	21	22	23	24	25
CMTUG Computer Show	M3G					
26	27	28	29	30	31	
	UPCO (IBM PC)		CP/M SIG	Halloween		

## LANSING AREA COMPUTER CLUBS

ACM (Association for Computing Machinery)  
 Meets monthly. Contact Lew Crippen 377-6636 (days)  
 371-3179 (evenings); Mary Dike or Walt Davis 377-6636  
 (days)

AMIG (Amiga Mutual Interest Group)  
 Meets Third Monday, 7:30 PM; 255 Physics-Astronomy  
 Building, MSU. Contact Ray Ettinger, 646-6503.

ASM (Association for Systems Management)  
 Meets monthly. Contact Richard Olson, CSP, at 323-7000  
 ext. 289 (days).

Apple LUG (Lansing Users Group) (MC2)  
 Meets 3rd Saturday, 9:30 AM; 102 South Kedzie Hall,  
 MSU, East Lansing. Contact PO Box 27144, Lansing, MI  
 48909; Gary G. Martin 394-0115 after 6 PM.

CAPKUG (Capitol Area Kaypro Users Group)  
 Will not meet again until fall. Contact C. Stewart,  
 882-7821.

CCUG (Greater Lansing Color Computer Users Group) (MC2)  
 Meets First Saturday, 1:00 PM; East Lansing Public  
 Library, 950 Abbott, E.L. Contact PO Box 14114,  
 Lansing, MI 48901; Dale Knepper (president) 626-6917.

CHAOS (Capitol Hill Atari Owners Society) (MC2)  
 Meets 3rd Saturday 10 AM; 118 Physics-Astronomy Bldg.,  
 MSU, East Lansing. Contact PO Box 16132, Lansing, MI  
 48901; Leo Sell (president) 393-7792.

CHAOS STING (ST Interest Group)  
 Meets 2nd Saturday, 10 AM; 118 Physics-Astronomy Bldg.

CMARC (Central Michigan Amateur Radio Club)  
 Meets 1st Friday, 8:00 PM; American Red Cross Bldg.,  
 1800 E. Grand River, Lansing. Contact PO Box 10073,  
 Lansing, MI 48901

Comp Klub of Lansing (TI Users Group)  
 Meets 2nd Tuesday, 7:00 PM; Computer Consignments, 5501  
 S. Cedar, Lansing. Contact John Hayes 882-7860.

The Commodore Club (of St. Johns)  
 Meets Every Tuesday night, 7-10 PM. Contact David 4  
 Smallon 224-4678, evenings.

DECUS GLLUG (DEC Users Greater Lansing Local Users Group)  
 Meets Approximately every 2 months at a local DEC user.  
 Contact C. M. Watson (secretary) 483-1111 (days).

DRUG (DEC Rainbow Users Group)  
 Meets 2nd Saturday, 11:00 AM; Institute for Family &  
 Child Study, Home Management House #2, MSU (next to  
 Berkey) Contact Jeffrey Wehl 353-3717 (days) 349-6967  
 (evenings).

LACC (Lansing Area Commodore Club)  
 Meets First Wednesday, 7:00 PM; All Saints Episcopal  
 Church, 800 Abbott, E.L. Contact PO Box 1065, East  
 Lansing, MI 48823; Mike Boyce (president) 337-0454.

LAMALUG (Lansing Area Mac and Lisa User Group)  
 Meets monthly; different day in first week; 6 PM  
 dinner; 7 PM meeting; Bonanza, 6727 S. Cedar, Lansing.  
 Contact Dick McCarrick (Computer Consignments),  
 394-4408; Charles Winters 787-5731.

M3G (Mid-Michigan Microcomputer Group) (MC2)  
 Meets Third Tuesday, 7:00 PM; Foster Community Center,  
 200 N Foster, Lansing. Contact PO Box 1302, East  
 Lansing, MI 48823; Warren Wolfe (president) 337-7672.  
 Executive Meetings First Tuesday, 7:30 PM; Beggar's  
 Banquet, 218 Abbott, East Lansing.

M3G CMTUG (Central Mich. TRS-80 Users Group) SIG (MC2)  
 Meets Third Sunday, 4:00 PM, DeWitt Memorial Building,  
 206 N. Washington, DeWitt. Contact Lee Hodges  
 669-3258

M3G CP/M SIG (MC2)  
 Meets Last Thursday, 7:30 PM; Foster Community Center,  
 200 N. Foster, Lansing. Contact Tim Childs 321-4072.

M3G Heath/Zenith SIG (MC2)  
 Meets 2nd Wednesday, 7:30 PM; All Saints Episcopal  
 Church, 800 Abbott, E.L. Contact Tom Trana, 351-8455.

M3G Osborne SIG (MC2)  
 Contact Larry Tirone 484-3921.

MSU MUG (MSU & Capitol Area Macintosh Users Group)  
 Meets Monthly during MSU school year. Contact John  
 Sykes 332-6720.

U.P.C.O. (Users' Personal Computer Organization--IBM PC group) (MC2)  
 Meets 4th Tuesday, 7:30 PM; 116 Ag. Engineering Bldg.,  
 MSU. Contact Skip Osterhus 321-3425.





# SORTING by Ginny Werner

Sorting is putting objects in some kind of order. You can sort your socks by color, length, pattern, or number of holes. On the computer you may wish to sort a file by the starting character, length, contents of a certain field, or some other characteristic of each line and you may wish your sort to be in ascending (a to z) or descending (z to a) order.

You can usually find a program that will do the most reasonable sorts for you. These include such things as putting a mailing list in zip code order, or sorting a payroll by department.

However, if you want to sort a file by the number of spaces in each line you are apt to have to write the program yourself.

One method of sorting is called a Bubble Sort. For this sort you compare two adjacent items and if they are not in the correct order you swap them. You make one complete pass through the list and then start over again. You are finished when a pass through the list yields no swaps.

EXAMPLE: alphabetize the following five words using a bubble sort.

disk tape memory core cache

Comparing the first two words, disk and tape are in alphabetical order. Comparing the next two words tape and memory are not in alphabetical order, so swap them. The words are now in the following order:

disk memory tape core cache

Comparing the next two words, tape and core are not in order, so swap them. You now have:

disk memory core tape cache

Comparing the last two words tape and cache are not in order so swap them. At the end of the first pass the words are in the following order:

disk memory core cache tape

At the end of the second pass the words are in the following order:

disk core cache memory tape

Third pass:

core cache disk memory tape

Fourth pass:

cache core disk memory tape

Fifth pass:

cache core disk memory tape

Since on the fifth pass no changes were made the sort is done.

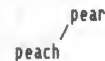
A Bubble Sort is slow but you only need space for your file and is fairly easy to understand.

Another type of sort is a Tree Sort. You start out by putting the first item at the top of the tree. If the next item is less than or equal to the first item you put in the left node of the tree, otherwise you put it on the right. For each item you start comparing it with the item at the top of the tree going down each of the branches until you find an empty node. When you are done placing the items you read the tree starting with the leftmost node, going down the right of the node (if there is one) before going up to the next node.

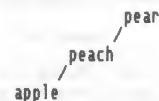
EXAMPLE: alphabetize the following ten words using a tree sort.

pear peach apple orange grape  
tomato peach plum grapefruit cherry

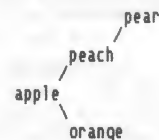
First put the word pear at the top of the tree. Since peach is alphabetically less than pear you put the word peach in the first node to the left of pear. The tree now looks like this:



The word apple is less than pear so it goes to the left. It is also less than peach so it goes to the first node to the left of peach. The tree now looks like this:



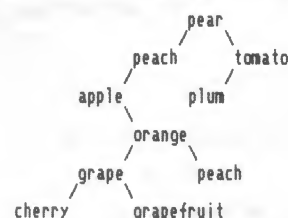
Orange is less than pear and peach but greater than apple. It goes in the first node to the right of apple.



Grape is less than pear and peach, but greater than apple. It is also less than orange.



The completed tree looks as follows:



Notice that the word peach appears twice and that each occurrence gets a separate node.

# THE USER

by Joe Werner

To read the tree you start at the top and follow the tree to the left. Pear has a left node - peach. Peach has a left node - apple. Apple has no left node so it is the first word.

Apple has a right node - orange. Orange has a left node - grape, and grape has a left node - cherry. Since cherry has no left node it is the second word.

Since cherry has no right node, you go back up a node to grape. Grape is the third word.

Grape has a right node - grapefruit. Grapefruit is the fourth word. So far the alphabetical list is:

apple cherry grape grapefruit

Since grapefruit has no right or left node you go back up the tree to grape. You have already gone down both nodes of grape so you go back up the tree to orange. Orange is the fifth word.

Orange has a right node - peach. Peach is the sixth word.

Since peach has no right or left node you go back up the tree to orange. You have already gone down all nodes of orange so you go back up a node to apple. You have already gone down all nodes of apple so you go back up a node to peach. Peach is the seventh word.

Since peach has no right node you go back up a node to pear. Pear is the eighth word.

Pear has a right node - tomato. Tomato has a left node - plum. Plum is the ninth word.

Since plum has no other nodes you go back up the tree to tomato. Tomato is the last word.

The words in alphabetical order are:

apple cherry grape grapefruit orange  
peach peach pear plum tomato

Tree sorts are a little harder to understand and they also take up more space than bubble sorts (you have a copy of the file and a copy of the tree). However they are usually faster and they lend themselves to recursive subroutines.

There are many other methods of sorting and some languages include sorting facilities (EBCDIC includes three different sorting methods). I have shown you the Bubble Sort because it is a very common sort and a very easy sort to program. I have shown you the Tree Sort because it is one of my favorites.

MS-DOS software for sale. Most were never used, some are still in shrink wrap. Gem Desktop (DR) \$20, Write and Spell (PSI) \$20, IBM Basic \$15, Concurrent PC DOS (DR) \$40, General Accounting (BPI) \$65, Please (Hayes) \$25, Pearlsoft (Personal Pearl) \$35, Personal Wordperfect (SSI) \$35, Dayflo (DS) \$35, Rbase 4000 (M) \$40, Complete Smart Software System (IS) \$65. For more info, call Dave at 349-0839.

ComputerFest '86, the computer show of the Midwest Affiliation of Computer Clubs (MACC) and the Dayton Microcomputer Association (DMA) was held in Dayton's Hara Arena this past August 23 and 24. We went to it, and it was an interesting two days.

The mix of vendors was different from most other shows, including this past spring's Consortium show. There were more vendors selling components, from the chip level to the board level. And with a "flea market", several users or small businesses were selling a varied lot of surplus equipment and software. (To tell you the truth, these are the areas in which I spent most of my time and money!)

Other differences were also notable. The Arena was laid out in two different parts. While they adjoined each other, you could miss the back part if you weren't careful. And the tables and aisles were larger and better laid out than in the Consortium show, with wider aisles and the ability for vendors to lay out "walk-in" booths.

While I did see an old (or rather, antique) Processor Tech SOL, several older Radio Shack units, and some Commodore 64 units, the vast majority of running hardware at the show was PC clone hardware. There were several booths full of Oriental-looking people selling Oriental add-ins and add-ons for the PC. The Eastern connection was quite clearly evident. And in all of it, not a single Apple II, III, Lisa, or Mac!

There were also bargains to be had on accessories and supplies. More than one booth were selling new 5.25 inch diskettes for 29 cents each in quantity 50. (We bought some, and they are surprisingly good. We've come a far cry from the "cheap" diskettes of a few years ago, when you could tell a "cheap" \$2 diskette from a "quality" diskette by the sound the cheap diskette made as it ground your diskette drive head away.)

At the other extreme, one booth was offering the Apple LaserWriter for just under \$4,500. While that was a bit high-ticket, it was a helluva deal for one of the best printers going.

And the seminars! What is ComputerFest without seminars? Hal Chamberlin was showing off the latest in High-Fidelity Computer Synthesized Music (at 1.2 megabytes of diskette every 35 seconds), and comparing it with his earlier projects which he wrote about in BYTE in 1977 and showed off at ComputerFest '78 in Detroit. Gary Ganger on Intermediate and Advanced FORTH. A presentation on Computer Card Catalog systems being introduced into libraries. Discussions ("discussions?") on disk formats and copy-protection schemes. Presentations on Parallel and Serial Interfacing, UNIX, Packet Radio, and Computer Widowhood, and more. All in all, a most enjoyable weekend.

While on the subject of shows, please take note of Ham Fair '86, the annual show sponsored by the Central Michigan Amateur Radio Club and the Lansing Civil Defense Repeater Association. The Fair will be Sunday, October 12, 1986, from 8 AM to 3 PM, at the Michigan National Guard Armory, 2500 S. Washington, in Lansing. There is a \$3.00 donation for adults, and vendor tables are available at \$1.00 per foot. For additional information and table reservations, contact Rowena Elrod KA80BS, 111 Lancelot Place, Lansing, MI 48906, (517) 482-9650.

This is the original "Grand Ledge Ham Fair", which moved from Grand Ledge due to scheduling problems a few years ago. They are again this year at the South Washington Street Armory, which I understand can no longer be scheduled for such events, so they may be looking for a new home next year. We'll try to have news here.

Way back when, in the early days of personal computing, the radio amateurs were some of the pioneers. Today, the two hobbies often merge, and you will certainly find dealers and swap shop tables selling computer equipment. If you're a hardware hacker, like me, this show is a "don't miss"! But beware - it closes early. Come in the morning if at all possible!

## Ideas to help you process information



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## DIABOLIC

by Frank Dolinar

### Dealing with Murphy "Two Wrongs are Only the Beginning"

The Chinese have a saying which they interpret as a curse. It is "May you live in interesting times." This is a recounting of an interesting time.

Have you ever had one of those situations when everything seemed to go merrily to oblivion while you, like Sisyphus, watched it go? This situation was probably accompanied by a sinking feeling of helplessness situating itself comfortably in your stomach.

Some people think this feeling is fun, for a few seconds, on an amusement park ride called Demon Drop. Others, members of NASA's astronaut corps, are paid to get used to it in the microgravity environment of orbit. But it's never a good feeling when you're trying to write a program that someone else is paying you for, and you can't seem to make it work.

As an independent consultant, writing programs for other people is often a large part of what I do through my company, Consult Tech Corporation. That sinking feeling is not welcome in my office, my business, or my life.

In a recent encounter with the eminent Mr. Murphy, it seemed that everything I tried to make progress on a particular software package went drastically awry.

First, I bought a translator program, because I thought it would save me time. And it did. The actual translation from dBase II to C went like greased lightning and produced nice readable C code with comments and messages from the translator stating just exactly how much it was actually able to do for me during the translation. Very nice, very polite. Just, in fact, what I expected.

I did the preliminary development on a PC, knowing that I'd have to move the entire system to a CP/M-based machine when things got a little further along. But the initial development on the PC went very quickly and very smoothly. Perhaps too quickly and smoothly. Murphy clearly saw an opportunity here, but declined the opening gambit.

The first pieces of the system were cobbled together in jig time and I was ready to take it to the client and proceed to port it to the CP/M-based machine.

Murphy made his move. It seems that the C compiler on the CP/M machine, although from the same company as the compiler I'd been using on the PC, had a number of problems on the CP/M machine. First, it took up the lion's share of the system's memory for its operation. Suddenly, a 64K main memory looked frighteningly small. Second, it had a habit of running out of memory and/or stack space on source code files larger than about 20K. Thirdly, the lovely source code that came with the translator could not be made to work in the CP/M environment. Eight days later, after trying everything I knew how to do with the code, I still didn't know why it refused to work.

As a stopgap measure, I attempted to provide a quickly written dBase II function to solve the client's immediate needs. Now, dBase is currently my best language. I expected no trouble at all getting a couple pages of dBase code to work. Murphy, however, was quietly waiting in ambush. Nothing I did to this relatively simple dBase



function served to make it work. I was beginning to look for the big, red button marked PANIC.

I asked a friend to examine the dBase code. I am a firm believer in so-called "egoless" code. I'm concerned that a project get done correctly, but I have little ego involvement with "my code." If someone can find an error, a bug, or a better way to approach a code fragment, I'm happy for the help.

After examining my quick fix dBase function, my friend was not able to find anything at all wrong with the dBase code. In fact, he complimented me on writing such clean, clear, and concise code. Regardless, it didn't work.

The next morning, I arrived at the client site with my new companions, panic and despair. The client said that he had a problem, that he wanted something done a different way, and the work I'd been doing the previous day was probably going to be useless. As it turned out, his request was so easy to implement that the results were being generated within an hour. Murphy must have slept late that day.

I came back to my office to work on the software. Then I discovered that although my terminal (which had recently been repaired) was working perfectly, my Z-80 CPU was being intermittently flakey. Murphy really decided to have some fun here. The CPU board had to be replaced.

Then, I discovered a bug in the C compiler I was using. It seems that this particular version of the compiler had to have all of the compiler modules as well as the source code on the same disk. If I tried to put the source code on another disk (e.g. drive B), the compiler refused to perform the code generation pass. This lack was not obvious at first, and I wondered why a bug I'd corrected in the source code continued to appear when the revised code was compiled.

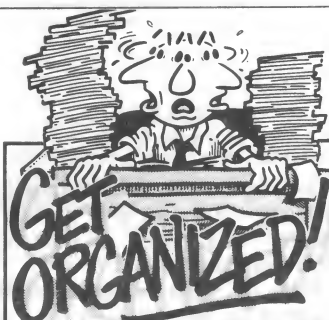
It reads quickly here. It took a month of my time and all the help I could get from everybody I knew before I finally was able to get any kind of acceptably functioning software working in the CP/M environment. I was not amused.

The system finally seems to be giving up some of its secrets. The frustrating part of it all has been that I have had to trust:

1. a compiler with at least one known bug (because that's the compiler that was specified by the client);
2. an assembler that gave me no clues to its functioning except to say "No fatal errors" at the end of its processing. (I've wondered if there might have been any non-fatal errors, but had no way to find out);
3. a linker (LYNX) that I had never used before, but which at least gave me plenty of on-screen messages while it did its job. I came to like it a lot.

It has been a learning experience. I've learned more about the crusty corners of C code than I might otherwise have done in the same time period. This was, however, not my preferred method of encountering some of these truths.

Murphy has had some fun with me, lately. But with the help of friends and colleagues, and with a persistence I was not aware I had, the system is finally working the way it was originally intended to work.



## WITH THE NEW TURBO REF

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Computer Language Review, Nov 85

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CP/M Sig  
by Tim D. Childs

How does one keep track of all the things that are on all of those disks? This seems to be a common problem of all microcomputer users. Users of CP/M have several choices available to them.

Several years ago, Ward Christensen (of MODERN fame) wrote and placed in the public domain a set of programs which provided a comprehensive diskette software cataloging system. The concept of the system was that each diskette should contain a special file which identified the diskette by name and number; a label file or flag file, if you will. All of the label information was contained in the file name and file type; the contents of the file were irrelevant, and even an empty file would suffice. The system programs would read the disk directory and update a special catalog file (named MAST.CAT) based on the current contents of the diskette; adding the names of files which had been placed on the diskette since the last update and deleting those which were no longer on the diskette. There is a provision to allow common files which are normally on all or most of the disks to be omitted from MAST.CAT to save time and space. These are called IGNORE files.

Another special program would search MAST.CAT and make reports based on several criteria: which disks contain specified files, which files are on specified disks, etc. The programs which make up Ward's original system are known as FMAP, GCAT, UCAT, and CAT. They may be found on CP/M User's Group Disk 25, and an updated version on CPMUG 40. For more information about the basic system, see the file CATALOG.DOC on these disks. While the system algorithm was excellent, the actual implementation of the system left something to be desired. For each disk, two separate .COM files had to be run. The first read the disk directory and wrote to disk a temporary file containing the directory information, the second read the temporary file just written (and then erased it) and used the information to update MAST.CAT. Using the system was somewhat awkward, and the creating, writing, rereading and erasing of the temporary disk file took a finite amount of time (which added up when there were several hundred disk sides to catalog.)

Then along came a fellow named Lewis Moseley, Jr., who decided that there had to be a better way. He took the source code for Ward's programs and combined them into one. Lew's program is called NEWCAT. He also eliminated the intermediate disk file, simply keeping the data in memory, which results in increased speed.

NEWCAT, in my humble opinion, is not without its own flaws. It prompts you to mount disks as it goes. On a single drive system, this would be great, but almost no one has less than two drives anymore, and it gets tedious

real fast.

In the case of both sets of programs, the flag file must first be put on all of your disks. The file name of the flag file must start with the character "-" to identify it as the flag file. I use only a three character disk ID which I place in the file type of the flag file name. The easiest way to do this is to use a CP/M "SAVE" command. For example, "SAVE 0 -CATALOG.012" identifies my disk number 12 (and uses no file space). (This will not work under CP/M 3, as the save command is implemented differently. A text editor or special program can be used instead.) For easy visual identification, I write this same number with a Magic Marker on the diskette label.

You must also use your normal editor to create a file named MAST.CAT and place in it the list of files to IGNORE, ie, to leave out of MAST.CAT even if they are on the disks. For example, most disks would have STAT.COM and PIP.COM, and perhaps your editor and a directory utility such as XDIR.COM. The files to be ignored should be listed one per line, with the first name preceded by a "(" and the last name followed by a ")". IE, the list is enclosed in parentheses. For the files noted above, the initial MAST.CAT look like this:

```
(STAT.COM
PIP.COM
ED.COM
XDIR.COM)
```

There must be at least ONE name in the ignore list. If you want all files to be in MAST.CAT, create an initial MAST.CAT containing a dummy ignore list like:

```
(DUMMY.FIL)
```

Using each of the systems is similar. Assume you have prepared your initial MAST.CAT file on drive A:, and created a flag file on the disk in drive B:. To use Ward's system, the command sequence would be:

```
A>FMAP B: F
--- long list of stuff displayed by FMAP ---
A>UCAT
--- long wait while drive A: grinds ---
```

Using NEWCAT is somewhat more straight forward:

```
A>NEWCAT B:
```

Only now we have to answer several Yes/No questions. There seems to be no way of telling NEWCAT to go ahead and just do the job.

Now that we have this master file containing all of our disk directories, we need some way of extracting that information in a useable form. The report-generating program of Ward's system is called CAT.COM. It allows you to search MAST.CAT for ambiguous file names on ambiguous disk names, and other helpful things. One thing that it does not do conveniently, however, is make an easy to use hard copy catalog of all files and all diskettes. The program will make the printout with no trouble, but it prints only two files per line, and the listing is awkward to scan. NEWCAT comes with a utility called CROSSREF, which gives a more human-usable full report from your MAST.CAT, at the expense of some of the detail. Specifically, CROSSREF assumes that only the file-type portion of the name of the flag file is significant.

CROSSREF reads the entire MAST.CAT, and makes a table of file names, file types, and disk IDs. This table is sorted alphabetically, and an output file is written as a listing image. The listing is formatted one file name per line, followed by the IDs of all disks that contain that file. The number of disk IDs per line is an assembly time parameter. PIP.COM or a pretty-printer program is used to print out the output file. For example, a short CROSSREF listing would look like this:

```
ASM      .COM - 012 037 12A 23B
EDIT     .COM - 019 127 31A
NEWCAT   .COM - 20A
NEWCAT   .DOC - 01A
ZSID     .COM - 017
```

There is one other disk cataloging system which I have seen. It is called YANC-CAT (Yet ANOther Cat?). This seems to be another attempt to combine Christensen's original programs into one package, and appears to be menu driven. I can't really go into detail about this one because it was written for a system with screen controls (addressable cursor, reverse video, etc), which are not compatible with mine, and it really messes up my terminal. Rumor has it that it was written for the Osborne 1. Perhaps someone who has used this package can confirm this and will tell us about it.

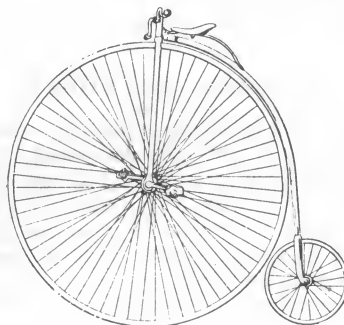
Which system is best? That, of course, is strictly a matter of personal preference. I prefer Ward's original set of programs to the others because their operation is automatic. I can type

```
A>CAT1 B: F!CAT2
```

and walk away while it does it's stuff. (CP/M 3 allows multiple commands on a line, separated by the exclamation mark. CP/M 2 users would have to type the commands separately or put them in a SUBMIT file [that's a batch file for you MS-DOS types]). NEWCAT requires too much

user intervention for my tastes, although it's much faster when it gets going.

NEWCAT and YANC-CAT are both available for downloading from the CP/M board on LSJA (482-8144). Portions of the above were extracted from NEWCAT.DOC by Lewis Moseley, Jr.



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---

# APPLE LUG NEWS

---

## Apple LUG Officers

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<i>Vice-President:</i> Jim DeNike	3882 Okemos Rd., Okemos	349-3714
<i>Secretary:</i> Gary G. Martin	822 W. Willoughby Rd., Lansing	394-0115
<i>Treasurer:</i> Dick Ferris	502 W. Columbia St., Mason	676-9507

---

## PROGRAM THIS MONTH

Apple L.U.G. members and other readers of *ENERGY*, it is time again for one of the most spectacular events in the L.U.G. calendar, the ANNUAL AUCTION. Not only is this an opportunity for those who have "out-grown" a piece of hard- or soft- ware to transform it into hard cold cash, but equally attractive is the prospect of obtaining a rare specimen for a fraction of its original value. The Auction will be held October 11th. This will be one week earlier than the normal meeting time due to the fact of the Computer Show on the 19th, Holidays coming up, and the football schedule for M.S.U. Registration for Sellers will begin at 9:00 a.m. on the MSU campus in the auditorium of South Kedzie Hall, just across the garden from where our regular meetings are held. Buyers can start registering at 9:30 a.m. with the Auction starting at 10:00 a.m. Follow the signs in the building. If you can't find the building, see the map located later in the Newsletter.

Last years AUCTION was tremendously successful, and we anticipate this year's will be even better. In contrast to years past, we are inviting *ALL* computer users and dealers to participate as either buyers or sellers in the auction. Consequently, we are not restricting the auction to Apple or Apple compatible products. However, the following rules must be followed in order to place an item on the auction block.

1. ALL SOFTWARE offered must be ORIGINAL COPIES with ORIGINAL DOCUMENTATION.

The Apple L.U.G. will not auction backup copies and Xeroxed documentation. The reason for this is obvious.

2. ALL HARDWARE to be sold should work or should be noted as having specific problems. Please do not bring hardware that does not work, hoping that the person that is going to buy it won't find out until he gets the item home;

3. ALL HARDWARE AND SOFTWARE is sold on a "as is" basis. The Apple L.U.G. accepts no responsibility for the condition of the software and/or hardware. However, we will gladly supply buyers with the address and phone number of the person that brought the software and/or hardware to the auction. It will be up to you to settle any differences that may arise.

In order to keep track of items, buyers, and sellers, the following format has been established for the AUCTION:

1. BUYERS will be required to obtain a number PRIOR to bidding on an item. Therefore, it's suggested that everyone obtain a number as soon as they arrive at the auction. YOU DO NOT HAVE TO BUY ANYTHING IF YOU OBTAIN A NUMBER. You may obtain a number at the auction by registering at the buyers table.

2. SELLERS must register at the "SELLERS TABLE". Registering consists of: Giving identification, including Name, Address and Phone Number; And, telling the person at the table how many items you wish to sell. Each

item you sell must receive a number. This number, or sequence of numbers, will be given to you at this table (DO NOT MAKE UP YOUR OWN). After receiving the numbers, it will be your responsibility to place these numbers on your items (sticky back labels will be provided for you).

The *procedures* for the AUCTION will be as follows:

1. Each item will be placed on tables (by Sellers) for viewing (by potential Buyers) before the AUCTION starts. The "BUYERS TABLE" and the "SELLERS TABLE" will be open shortly after 9:00 a.m. The actual AUCTION will start around 10:00 to 10:30 depending upon the number of items, buyers, and sellers.

2. Once the items have been viewed by prospective bidders, the tables and their contents will be removed to the front stage of the auditorium and the auctioneer will begin presenting the items in random sequence.

3. As each item is sold, it will be handed directly to the buyer. If the seller of the item is not satisfied with the final high bid, he/she may "no sale" the item at this time, stating if he/she choses what minimum bid would be required. Sellers pay a 10% commision on all items offered; 10% of the highest bid if the item is "no-saled". The number of the item and the number of the buyer will be noted. This allows us to keep track of all purchases. At this time the buyer is responsible for the item and will be charged accordingly.

4. Before a buyer leaves the AUCTION, he must pay for the items he purchased. This will be done at the "BUYERS TABLE". The procedure is simple. The buyer will show his number to the people behind the table and they will sort through all sales sheets noting purchases made under his number. All purchases will be totaled and the buyer will be required to make payment at that time.

5. After the AUCTION is OVER, the SELLERS should claim all items not sold. It will be their responsibility to look after these items. The SELLERS can also settle up at the "SELLERS TABLE". The people working at the table will sort through all the items purchased and registered to the seller. After this is done, a total will be made and the club will take it's share and make payment to the SELLER. The club receives a 10% commision on all sold and "no-sale" items. Items which do not receive bids are not liable for commision charges.

If we have your cooperation, we should have a sale that runs smoothly. WE NEED PEOPLE TO HELP WITH THIS SALE. If you wish to help out, please come to the AUCTION and ask to help. Your support will be greatly appreciated. This AUCTION is a service that is not offered, to my knowledge, by any other club. Please help us to help you.

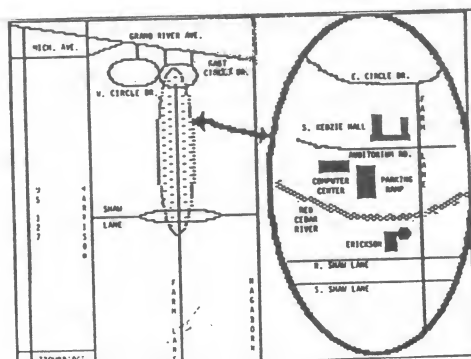
Thank you... Apple L.U.G.

### EDUCATION S.I.G.

Chairperson: Judy Haught

The next meeting of the Education S.I.G. will be November 22nd at 10:00a.m. Normally we meet at the following location :

Computer CoOp  
5127 - C Aurelius Rd.  
Lansing, MI 48910  
(Corner of Aurelius and Jolly)  
Ph: 882-3041





# WAPACROSTIC

by Professor Apple

(Reprinted from WAP 5-86)

	1	K	T	3	O		4	U	5	V	6	E	7	W	8	O	9	V	10	Q	11	M		12	C	13	Q	14	T	15	A	16	O								
	17	Q	18	Z		19	Y	20	C	21	U	22	C	23	P	24	E		25	D	26	R		27	E	28	X	29	Q	30	C	31	P		32	Y					
33	P	34	W		35	P	36	N	37	M		38	S	39	Y	40	G	41	B	42	J		43	E	44	V	45	H	46	Y		47	H	48	T		49	L			
50	F	51	H	52	A	53	F	54	L	55	X		56	X	57	D	58	Y		59	X		60	U	61	Y	62	R	63	I	64	R	65	N	66	K		67	N		
68	G	69	F	70	A	71	W	72	P	73	P		74	H	75	U	76	J		77	M	78	H	79	I	80	D		81	T	82	B		83	H	84	D				
85	S	86	M	87	R	88	B		89	J	90	J		91	A	92	Z	93	O		94	G	95	A	96	X	97	Y		98	H	99	J	100	V	101	T	102	X		
103	B		104	W	105	C		106	O	107	P		108	M	109	X	110	I	111	M	112	N		113	Z	114	U		115	A	116	K	117	D		118	J				
119	E	120	D	121	J	122	B	123	S	124	V		125	G	126	B	127	Z	128	V	129	L	130	F	131	I	132	F	133	R	134	L		135	E	136	Z	137	U	138	L
139	C	140	K	141	N		142	V	143	F	144	R	145	F		146	F	147	L	148	Y	149	L		150	G	151	D	152	I		153	B	154	S		155	K			
	156	R	157	K		158	A	159	I	160	G	161	T	162	L	163	N	164	I		165	K	166	G	167	M		168	D	169	N	170	S	171	I	172	P				
	173	J	174	Z		175	N	176	X		177	T	178	U	179	M		180	K	181	V	182	R	183	B		184	H	185	S	186	E	187	D							

## Definitions

## Words

A. Reflection

115 91 95 52 158 70 15

B. Surpass in speech

82 126 122 41 183 153 88 103

C. Retention of ideas

22 30 12 20 139 105

D. Launderer

25 57 120 80 117 187 168 151 84

E. Make an effort

186 43 24 119 6 135 27

F. Water from the clouds

69 53 132 145 146 50 130 143

G. Pagan idol

40 68 94 125 150 166 160

H. Exemption from punishment

83 45 98 78 51 47 74 184

I. Seized tightly

63 164 110 171 79 131 159 152

J. Buckwheat

121 173 76 42 89 90 99 118

K. Thoroughfares

180 140 1 116 165 155 157 66

L. One who deceives again

162 147 49 129 134 138 149 54

M. Pitched tents

37 111 108 86 77 167 179 11

N. Fellow sailor

65 36 175 67 141 163 112 169

O. Compound with divalent acid radical

8 106 16 93 3

P. Difficult childbirth

31 107 73 35 33 72 172 23

Q. Kleine Nachtmusik

10 29 17 13

R. Origin

133 144 182 87 64 156 62 26

S. Boiled molasses

154 123 85 38 170 185

T. Boy's name

81 177 14 101 2 161 48

U. Groups of three maniples

4 75 178 137 21 114 60

V. Left to choice

100 124 142 44 5 9 181 128

W. Teacher (Heb.)

34 71 104 7

X. With little breadth

176 59 28 96 109 56 102 55

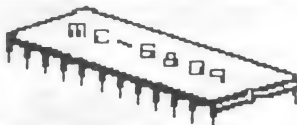
Y. Pouring out

97 32 19 61 58 39 148 46

Z. Container of torn cloth

136 92 174 127 113 18

# GREATER LANSING COLOR COMPUTER USER'S GROUP



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P.O. BOX 14114 - LANSING MI 48901

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Bits and Bytes  
by John Evans

At the September meeting, I made public my intentions to step down as your CCUG Contributing Editor for Energy Magazine. The two members selected to replace me are Hugh Betz and Al Little. My best wishes to both gentlemen. With both of you working together as a team, I am certain our contributions to this magazine will continue to improve.

The most frustrating part of being the CCUG Editor this year was the lack of text from members. Our club can continue to grow <ONLY> if members are willing to participate in club activities. The club activities I refer to consist of demonstrations of hardware & software at the monthly meetings, contributing Public Domain programs written by yourself or others to the library, letting other CoCo users know about the club, attending the meetings to offer your knowledge and/or ask questions about a software/hardware problem, help other members make our special projects (computer shows, etc.) become a success, write text for our newsletter portion of Energy Magazine and so on.

How is it that people learn? No matter how much one has read, the best way of learning is by doing. No matter what club one wishes to belong to, the fact is: AN INDIVIDUAL GETS OUT OF THE CLUB ONLY THAT WHICH THEY THEMSELF PUT INTO IT. Participation is the key. People who passively sit back, pay their dues then never attend and/or never participate in the meetings get very little out of their membership.

Our club is fortunate to have ACTIVE members such as Dale Knepper, Craig Hahn, Malcolm Cleveland, Greg Miller, Hugh Betz, Al Little and others. I doubt if members actually know or fully appreciate how much people like Craig or Malcolm or Dale put into OUR club each month. Please take a bow gentlemen...you deserve it! And, while they take that bow, I ask those of you who read this to take a moment to think about what YOU can do to help make OUR club more interesting by PARTICIPATING. See you at the meetings....

=====

WANTED: "Electronically dead" intact CoCo keyboards. Used as teaching devices for elementary school children. Call Dale Knepper at 626-6917.

=====

## Other Bits

Read about the new CoCo 3 lately? I can't help but point out that the new machine uses a form of "memory management" rather than "bank switching" to implement 128K and 512K memory.

TCBBS by Greg Miller and Ben Cranston is a NEW machine language BBS software system now operating on Benchboard BBS. The telephone number for modem users is 394-2447. The protocol is 8 data bits, no parity, 1 stop bit and 300 or 1200 BPS (baud). Please remember to goto the <O>perations menu to leave a password before logging off.

## UPCO Notes

by Skip Osterhus

### Old business:

Last meeting: August 26th, 1986 at 7:30 p.m.

Place: Room 223 of Natural Resources/MSU campus

Attendance: 40

Door prize: Cruise Control

Winner: Sam Lopresto

Speaker: None

Topic: Co-sponsoring the October computer show.

Incorporation.

DOM: No

EXCHANGE: Yes

- 1] Please notify the club of any address changes ASAP. We sometimes have to pay for ENERGY if it can't be delivered!
- 2] Please check the mailing label on each issues of ENERGY that you receive. If your address changes and you do not notify us then you might not get your next issue of ENERGY. Keep in mind that your address label is also a reminder of you current membership status. There will be a message on the the label stating 'Renew now' one month before your membership expires and the month it does expire the message will be 'Expired'. It is important to keep your dues current in order to buy club diskettes and have full access to the bulletin board as well!
- 3] Please check this column for the exact date and location of the meeting each month. Although the calendar in the front of each issue is correct most of the time, this column is the final word on the subject.
- 4] PCjr owners interested in a PCjr SIG may contact Ray Robins at (H) 517-694-1926 or (W) 517-377-9383. If there is enough interest then Ray will schedule a meeting. Please let Ray know of your interest in the PCjr and let's get the SIG of to a good start.
- 5] Take note that our new advertising manager of ENERGY is Andy MacDonald from UPCO. If you have any thoughts about advertising in ENERGY or want some info, please be sure and ask him if you see him at an UPCO meeting. Congratulations Andy for taking over this job for the MC2!
- 6] The next Computer Show in Lansing will be at the Clarion on October 19th, 1986. The Michigan Computer Consortium will not be sponsoring this show. UPCO will probably have a table or two at the show so stop by and visit our table to see if there are any 'SHOW SPECIALS' for our loyal members. See you there!

### New business:

Next meeting: October 28, 1986 at 7:30 p.m.

Place: Room 116 of Agricultural Engineering/MSU

Attendance: ?

Door prize: Surprise

Winner: ?

Speaker: ?

Topic: ?

DOM: Maybe ?

EXCHANGE: Expecting September/October

- 1] As of this writing UPCO has a new president. I have succeeded in stepping down after more than two years of leading the club. I would like to thank all the members for backing my decisions and allowing me plenty of leeway in guiding the club through the past two years. I would especially like to thank all of my fellow officers and in particular Les Mack and Dick Janson. These two people made the president's job a lot easier all the way around. Now I expect as a club member for everybody to give our new president (Marv Wardell) the same ...and more... support. It is long past time that UPCO needs to grow and change. We need to make it easier to recruit people for key positions within the club structure. The answer obviously starts with each and every member. Your support is the key. I would like to issue a challenge to the membership to see if we can in the near future get attendance up to the 100 level. This is a level that has never been obtained in the four plus years of existence. Our peak figure was obtained when we scheduled the speaker from PC-Magazine and that was about 75 in August 1985. I believe we can do better. It is much easier to schedule speakers if we know in advance that the membership will turn out. So even if you feel you can't volunteer for a position, at least try and get to the monthly meetings.
- 2] UPCO still needs a couple more people to man the tables for the October 19th show. Please contact Dick Luer at 517-323-7000 during the day if you can be there. We are looking for people to put in a single two hour shift at the UPCO table. All that you will have to do is collect money from people signing up and sell club diskettes. Doesn't sound too tough does it? And remember, you'll get in free!
- 3] Plans have started for a spring 1987 computer show at the Clarion in either late April or early May. The ATARI club has challenged UPCO and M3G to put it on. I feel there will be enough of you to come forward when the time arises and help out! Please don't let our fellow CHAOS members be correct in judging our effort to sponsor our own show.

# IBM PC-AT Speed-Up by Information Architects

Many of you can probably remember back to your mid-to-late teens when you (or someone you knew) were obsessed with increasing the speed of your car or motorcycle. Spending much time and money to go ever faster, but never fast enough. Now many of us have the same obsession with our Personal Computers - more disk, more memory, or a faster chip. Personally, I have never been satisfied with a PC hardware/software configuration for more than 30 minutes. Something can always be changed to make it work a little better (faster). If you can relate to this, the remainder of this article may be of interest to you.

Justifying the cost of a faster PC to your boss (at work or home) is sometimes difficult. There are three basic reasons to increase the speed of a PC - 1) work efficiency, 2) quality of work life, 3) because it's there. The first two reasons are for your boss, the third is the real reason. The difficulty with justifying the speed increase is that it usually requires a sizable financial investment. As most of you know, the processor chip and disk drives are the two major components which can be changed to increase overall performance. Boards or disks have to be added or changed and often the entire PC must be replaced to get a substantial performance improvement.

One evening while complaining to a fellow speed addict (Skip Osterhus) about slow compiles, I learned of a cost-effective (cheap!) way to dramatically increase the speed of my IBM PC-AT. The speed at which a processor runs is governed by a crystal on the motherboard which emits a frequency much like a quartz crystal controls the time in a watch. This crystal can be replaced with one that runs at a much higher frequency, thus increasing the speed at which the 80286 processor executes instructions. The standard PC-AT runs at 6 MHz and a newer model runs at 8 MHz. A big selling point of many clones (in addition to lower cost) is that they run at 8+ MHz. Crystal replacement kits are advertised in many periodicals for approximately \$20, but crystals can be purchased from most electronic stores for approximately \$2 and installed by a novice. Crystals come in many speeds and it is wise to purchase at least few different speeds. Other components of the PC may not respond well to the increased speed. A special note on purchasing crystals - the PC runs at 1/2 the speed indicated on the crystal. This means that a 20 MHz crystal will be required to make the PC run at 10 MHz. Since \$2 is less than the price of a new COMPAQ '386, I invited Skip over to help install a faster crystal.

Installing the crystal was much easier than I had anticipated. Simply remove the cover and locate the crystal. It looks like a silver Chiclet with two quarter-inch prongs and resides on the motherboard which is lying flat in the bottom of the PC base. It is held in place by a clip and requires a little finesse to pop it out. It took only 5 minutes to remove the old 12 MHz crystal and install the 20 MHz. Naturally, it did not work the first time. The AST Advantage card I had purchased came with 128K of memory

and I had installed an additional 1M of NEC 120 ns chips. However, the original 128K on the board were only 200 ns chips. When the PC went through its power-up memory check, it kept getting a parity error on the original memory chips.

We decided to slow down and install the 18 MHz crystal. This time we got a clean power-up and the machine seemed to work fine. The first thing to run, of course, was the Norton Utilities System Information Command. This is the PC equivalent of drag racing. We were not disappointed, it showed a relative performance index of 9.2 to 9.4. An IBM PC is 1.0 and a regular PC-AT is around 5.7. This means we had increased the processor speed by 50% for only \$2 and 30 minutes of our time. Further testing, however, revealed a problem with the 360KB diskette drive. It would occasionally get a read error, which was easily corrected by responding with a Retry, but was still very irritating. This is caused by a routine in the ROM BIOS disk I/O. The PC waits a few cycles for the diskette to start up before reading. Since the processor is running faster, the cycle count is done before the drive is up to speed and results in a read error. Fortunately, there is a fix for this. An AT Floppy Patch can be downloaded from the Genie bulletin board (#275) and put in your AUTOEXEC.BAT. Since installing this, I have not experienced a single read error. In conclusion, I must say that this speed is very nice and has been the most noticeable single improvement to my machine to date.

Forty-five minutes later ....

Now about that disk access. I wonder how much faster it would run if I installed a disk cache ???

## Technical Notes:

This article was created using PC-Outline with final formatting done by PC-Write.

This article was printed on a QMS 'KISS' laser printer courtesy of Software City!

All Makes And Systems — Software & Peripherals  
Forms, Ribbons, Disks & Accessories

## COMPUTER CONSIGNMENTS

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JACK MCGINNIS  
STORE MANAGER

The DAWG's Tale  
by  
DATA DAWG



Can it be that this is the second column in this series already? Bet you didn't think after the last one it would continue? Well neither did I! Although I'm in the DOG house it isn't because of any flack generated by loyal ENERGY readers. Must be just like 300 baud modems that the mail is also slow in both directions.

My ears haven't exactly been burning from comments on my last column and I must admit I am disappointed. I made an assumption that all who receive ENERGY read ENERGY. Am I wrong? Close? Well if the DAWG can't shake up the local populace then maybe the powers that be should bring in the heavy hitters like J. Seymour, P. Norton or maybe even J. Dvorak! Come on readers, do you really want to scan another weakly column from the pro's bros?

As I bark out this almost free, quasi timely, semi-scoop info on my newly purchased COMPAQ 386, I'll remind everybody that I can't be seeking the big news stories all by myself. A good newsletter like ENERGY needs your help and support, send all of you good tips, and comments to the PO Box for ENERGY magazine. By the way, don't forget the DATA DAWG collar offer from last issue. The DAWG's canine cronies generously donated their personal collars for this offer.

Doing this column is time consuming, but I couldn't talk my friend S. KATT into taking over since he is already entrenched in a similar form of reporting for a rather well known national magazine. You know how independent cats are! Maybe we could one day have a firing line with S. KATT on the left and good old DATA DAWG on the right. We could debate the merits of APPLE vs IBM. UNIX vs MS-DOS. 8 bits vs 16 bits vs 32 bits. Dot matrix vs letter quality. ATARI vs COMMODORE. The topics are endless.

Say all you creative designers out there, did you know that you may submit a design that just might make it to the cover of a future issue of ENERGY. I'm working on a very secretive hi-tech controversial image right now as I input old Peter Max designs in my personal desktop scanner. Don't worry, if my design makes the cover, you'll know it's mine by the puppy paws in the lower right hand corner. (Excuse me while I paws for a biscuit.)

Has IBM really loosened up the requirements for being a dealer? What no more storefront? Sounds like a good chance for all the Okemos independents to make a killing. Take the surely-coming IBM '386 and bundle it with 'EMERALD BAY' (a data base product that will justify a '386 machine) and you have a dynamite combo that might just compete with local VARs and system houses. First applications could be dealer parts inventory, credit union accounts, VCR tape inventory, networking anything, and don't forget the ever popular games arena!

there aren't more computer related stores on the Lansing west side. Always seems to be people and trade there whenever the DAWG is sniffing out a story. Is the answer to go the way to Grand Ledge? Is that where the smart people buy from? Maybe DAWG can find some smart MSU student to give him the secret map to the computer knowledgeable like used when playing DD on a local campus.

People always ask the DAWG where to unload the slightly obsolete (broken, used, old?) computer equipment piling up in their basement, garage, and den. How about an auction like the one the APPLE L.U.G. runs or the Cedar store specializing in that area? Personally the DAWG would donate it to one of the local computer clubs, and so look for my expensive SINCLAIR to be given away someday at a club meeting. Don't expect to get any manuals though, as I'm not housebroken yet and ... well you can guess what I did with the paper manuals!

While in North Haslett last Tuesday I overheard reports that the newly announced APPLE IIGS was really crippled by APPLE and has caused some problems for some well known game designers. Anyone who can verify that amazing piece of info should contact the DAWG and explain in detail the facts behind such a decision. Seems the BOCA boys aren't the only ones capable of such a move. I'm going to give up my prowl if this is an emerging trend. Time out while I chew my bone on this one!. (Apple IIGS ... MAC compatible ... Ha! Ha!)

Remember Ed Roberts - the father of the ALTAIR? Seems he has come up with the ALTAIR II to be used to control home devices. Unit appears to be modular in design and priced about \$4000+. I should would like to get one, but my one room domain can't presently justify the space and the fee (mostly in scraps and leftovers) that I get for this column won't even make a down payment on one. Maybe I can get one of those 'techie types' in the Mid-Michigan club to jury rig me a unit till I can afford the real thing. Course if Mr. Roberts would like to send me an evaluation unit ... Woof!

Why isn't there a SYSOP's club in the Lansing area? Can't be that it is a too specialized a topic could it? After all Mr. Harris has attempted to organize a 123 group so why not a group of SYSOPs organizing? Go for it!

This column is going to end here since I need to go electronically snooping with my 9600 baud modem. Don't be too envious however since the increased baud rate is slowed down by my inability to paw more than 2 words a minute on the HUMAN designed keyboard. Please don't anybody suggest that I use a mouse either since my neighbors would snatch it for a meal. I could use a pointing device however since I possess a fine natural pointer (tail) of my own. I will wrap this column up by inviting all loyal ENERGY readers to the upcoming computer show being held October 19th at the Clarion. It is sponsored by the newly formed MICHIGAN COMPUTER SHOWS - people who are members of the very fine CHAOS club (another of the very fine MC2 clubs). Look for me there - I'll be the one with the spiked flea collar! Arf!



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